

## Estimated Mercury Releases to the Air from Industrial Sources

The Indiana Department of Environmental Management, Office of Air Quality (IDEM, OAQ) compiled information about air emissions of mercury from industrial sources. The following charts list large industrial sources in Indiana that emitted mercury in 1997, and an estimate of the pounds of mercury released. Since the Indiana rules do not require that sources report mercury emissions, data are limited. Please read the following explanation of the limitations of the information in the tables.

IDEM, OAQ estimated the amount of mercury emitted by sources in Indiana as part of the Great Waters Project (see page 2 for more information about this project). The estimated emissions are based on information submitted by the sources on annual emission statements, using emission factors for the specific types of emissions units that emit mercury. The use of control equipment was considered in some cases where information was available. Some sources voluntarily report mercury emissions during their annual emission statement reporting. Where reported emissions information was available, IDEM, OAQ compared the voluntarily reported data to the estimates and used the reported data when it was close to our estimates.

### **Please note that the list does not include all sources of mercury in Indiana.**

The list is limited to sources that are required to submit annual emissions statements in accordance with 326 IAC 2-6 (please see <http://www.state.in.us/legislative/iac/title326.html> for more information). In addition, emissions were not estimated for processes that do not have emission factors for mercury published by the US Environmental Protection Agency (US EPA) (e.g., for steel mill processes that use coke as fuel).

A table listing the industrial sources that emit mercury at more than 50 pounds per year and their estimated actual emissions is included as Chart A. Additional detail about estimated mercury emissions from individual emissions units at these sources is provided in Chart B. Chart B also indicates whether the emissions were reported by the source or estimated by IDEM, OAQ. Both tables are based on 1997 throughput and emissions data, the most recent data available at the time. IDEM, OAQ expects to complete a similar analysis of 1998 data by the end of 2001.

### **What is IDEM doing about mercury?**

IDEM has many programs to address mercury in Indiana's environment. Visit "Other Mercury Links" at <http://www.state.in.us/idem/ctap/mercury/index.html> to learn more about how IDEM is working to protect Hoosiers. Here are some examples of IDEM programs that address mercury:

- Mercury Reduction and Recycling for Schools Pledge Program. (See <http://www.state.in.us/idem/ctap/mercury/schools.html> for more information.)
- The Mercury Awareness Program (M.A.P.) for homes and families. (See <http://www.state.in.us/idem/ctap/mercury/map/index.html> for more information.)
- Mercury Reduction Pledge for Health Care Facilities. (See <http://www.state.in.us/idem/ctap/hospitals/index.html> for more information.)
- Mercury Thermostat Reduction and Recycling Pledge Program for heating, ventilation and air conditioning contractors. (See <http://www.state.in.us/idem/ctap/hvac/index.html> for more information.)



- Indiana's Toxic Release Inventory, which is a database of information about releases and transfers of toxic chemicals from manufacturing facilities. (See <http://www.ai.org/idem/oppta/tri/> for a searchable database, including a way to search by chemical name, location, or facility.)

### **IDEM's National Efforts to Protect Indiana from Mercury**

Mercury is a chemical that affects air, water and land in every state and beyond. Indiana alone cannot solve mercury problems, so our efforts include collaborating with others who can help. Following are a few examples of federal mercury programs that IDEM participates in with US EPA and others.

- **Unified Air Toxics Website**

US EPA recently required coal sampling and stack testing at coal-fired power plants, which are large contributors to mercury air emissions. The estimates of mercury emissions using this information can be found on the website, including a nationwide mercury emission estimate, plant-by-plant mercury emission estimates, and all states' mercury emission estimates. (See <http://www.epa.gov/ttn/uatw/combust/utilttox/utoxpg.html> for more information.)

- **The Great Waters Program**

Congress mandated the Great Waters Program in 1990. US EPA, in cooperation with the National Oceanic and Atmospheric Administration, states, tribes and others are implementing programs to address mercury in the Great Lakes. Information on the Great Waters Program can be found at <http://www.epa.gov/oar/oaqps/gr8water>. These groups are required to:

1. Monitor hazardous pollutants by establishing sampling networks
2. Investigate the deposition of pollutants
3. Monitor for hazardous pollutants in fish and wildlife
4. Determine the contribution of air pollution to total pollution in the Great Waters
5. Evaluate any adverse effects to public health and the environment, and
6. Determine sources of pollution.

- **The Canada and United States Great Lakes Binational Toxics Strategy.**

This effort is a collaborative process with Environment Canada (EC), the US EPA, Great Lake states, federal departments and agencies, the Province of Ontario, Tribes, and First Nations. These groups will work in cooperation with their public and private partners toward the goal of virtual elimination of persistent toxic substances, including mercury, which result from human activity. Particular attention will be paid to chemicals that build up (called bioaccumulation) in the Great Lakes Basin. The goal of this effort is to protect and ensure the health and integrity of the Great Lakes ecosystem. More information can be found at <http://www.epa.gov/glnpo/bns>.

**CHART A: Industrial Sources of Mercury Releases to the Air, Over 50 pounds per year.**

Source Identification	Source Name	County Location	1997 Estimated Mercury Emissions (lbs/year)
077-00001	Indiana-Kentucky Electric Corporation	Jefferson	1857
147-00020	Indiana Michigan Power-Rockport	Spencer	842
051-00013	PSI Energy - Gibson	Gibson	692
097-00300	Clarian Health Partners	Marion	660
035-00052	Ball Memorial Hospital	Delaware	656
125-00002	IPALCO-Petersburg	Pike	429
073-00008	NIPSCO - R.M. Schahfer	Jasper	406
003-00272	Parkview Memorial Hospital, Inc	Allen	321
153-00005	Hoosier Energy Rural Electric Merom Station	Sullivan	278
173-00002	SIGECO-Warrick Power Plant - ALCOA Generating Station	Warrick	202
097-00129	St. Vincent Hospital	Marion	187
029-00002	American Electric Power-Tanners Creek	Dearborn	183
097-00041	Wishard Memorial Hospital	Marion	179
089-00121	U S Steel Co.- Gary Works	Lake	165
093-00002	Lehigh Portland Cement Co.	Lawrence	159
133-00002	Lone Star Industries, Inc.	Putnam	154
033-00002	Auburn Foundry Plant #1	Dekalb	143
165-00001	PSI Energy - Cayuga	Vermillion	139
019-00008	ESSROC Cement Corporation	Dubois	134
097-00123	Ogden Martin Systems of Indianapolis	Marion	133
089-00003	Amoco Oil Company, Whiting Refinery	Lake	125
167-00021	PSI Energy - Wabash River	Vigo	119
097-00033	IPALCO - Stout	Marion	118
129-00010	SIGECO - A. B. Brown	Posey	118
163-00041	St. Mary's Medical Center	Vanderburgh	118
127-00002	NIPSCO - Bailly Station	Porter	114
091-00021	NIPSCO - Michigan City	Laporte	111
089-00210	Commonwealth Edison	Lake	109
089-00117	NIPSCO - D. H. Mitchell Station	Lake	93
173-00001	SIGECO - F.B.Culley Generating Station	Warrick	86
043-00004	PSI Energy - Gallagher	Floyd	80
065-00035	Henry County Memorial Hospital	Henry	70
109-00004	IPALCO-Pritchard Station	Morgan	68
089-00316	Inland Steel Co.	Lake	67
097-00012	Daimler Chrysler	Marion	66
157-00009	Indiana Veteran's Home	Tippecanoe	63
085-00003	Dalton Corporation Warsaw Manufacturing	Kosciusko	59
039-00118	Elkhart General Hospital	Elkhart	55
123-00019	Waupaca Foundry, Inc. Plant 5	Perry	52
125-00001	Hoosier Energy - Ratts Station	Pike	51

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**CHART B: Estimated Mercury Air Releases from Industrial Sources**

Source Identification Number	County	Source Name	Process Name	1997 Estimated Mercury Emissions (pounds per year)	Source of Data <sup>1</sup>
097-00300	Marion	Clarian Health Partners	INCINERATION	660.00	Reported
035-00052	Delaware	Ball Memorial Hospital	INCINERATION	656.00	Reported
147-00020	Spencer	Indiana Michigan Power-Rockport	BOILER 2 - COAL & OIL	429.60	Calculated
147-00020	Spencer	Indiana Michigan Power-Rockport	BOILER 1 - COAL & OIL	412.40	Calculated
077-00001	Jefferson	Indiana-Kentucky Electric Corporation	BOILER #1 - COAL & OIL	329.01	Reported/Calculated
077-00001	Jefferson	Indiana-Kentucky Electric Corporation	BOILER #3 - COAL & OIL	326.01	Reported/Calculated
003-00272	Allen	Parkview Memorial Hospital, Inc	INCINERATION	321.00	Calculated
077-00001	Jefferson	Indiana-Kentucky Electric Corporation	BOILER #6 - COAL & OIL	313.01	Reported/Calculated
077-00001	Jefferson	Indiana-Kentucky Electric Corporation	BOILER #4 - COAL & OIL	309.01	Reported/Calculated
077-00001	Jefferson	Indiana-Kentucky Electric Corporation	BOILER #5 - COAL & OIL	297.01	Reported/Calculated
077-00001	Jefferson	Indiana-Kentucky Electric Corporation	BOILER #2 - COAL & OIL	283.01	Reported/Calculated
097-00129	Marion	St. Vincent Hospital	INCINERATOR - SOLID WASTE	187.00	Calculated
097-00041	Marion	Wishard Memorial Hospital	INCINERATION	179.00	Calculated
051-00013	Gibson	PSI Energy - Gibson	BOILER 5 - IGNITION FUEL & PC DB*	176.10	Calculated
051-00013	Gibson	PSI Energy - Gibson	BOILER 4 - IGNITION FUEL & PC DB*	157.20	Calculated
133-00002	Putnam	Lone Star Industries, Inc.	PORTLAND CEMENT KILN	154.00	Calculated
125-00002	Pike	IPALCO-Petersburg	BOILER NO 4 - COAL & OIL	143.07	Calculated
033-00002	Dekalb	Auburn Foundry Plant #1	CUPOLA FURNACE	143.00	Calculated
153-00005	Sullivan	Hoosier Energy Rural Electric Merom Station	UNIT #1 - OIL & COAL	143.00	Calculated/Reported
153-00005	Sullivan	Hoosier Energy Rural Electric Merom Station	UNIT # 2 - COAL	135.00	Calculated
073-00008	Jasper	NIPSCO - R.M. Schahfer	UNIT 15 - COAL & NATURAL GAS	133.00	Calculated
165-00001	Vermillion	PSI Energy - Cayuga	BOILER 1 PC DB - PULV COAL & OIL	126.08	Calculated
019-00008	Clark	ESSROC Cement Corporation	NO.2 KILN	126.07	Calculated/Reported
051-00013	Gibson	PSI Energy - Gibson	BOILER 3 - IGNITION FUEL & PC DB	125.10	Calculated
073-00008	Jasper	NIPSCO - R.M. Schahfer	UNIT 14 - COAL & NATURAL GAS	124.80	Calculated
125-00002	Pike	IPALCO-Petersburg	BOILER NO 3 - COAL & OIL	119.10	Calculated
051-00013	Gibson	PSI Energy - Gibson	BOILER 1 - IGNITION FUEL & PC DB	119.06	Calculated
163-00041	Vanderburgh	St. Mary's Medical Center	CB INCINERATOR FDFU	118.00	Calculated
089-00003	Lake	Amoco Oil Company, Whiting Refinery	SLUDGE INCINERATION	117.00	Calculated
051-00013	Gibson	PSI Energy - Gibson	BOILER 2 - IGNITION FUEL & PC DB	114.10	Calculated

**CHART B: Estimated Mercury Air Releases from Industrial Sources**

Source Identification	County	Source Name	Process Name	1997 Estimated Mercury Emissions (lbs/year)	Source of Data <sup>1</sup>
125-00002	Pike	IPALCO-Petersburg	BOILER NO 2 - COAL & OIL	110.05	Calculated
089-00121	Lake	U S Steel Co.- Gary Works	84" HSM REHEAT & BLRS NG	109.00	Calculated
091-00021	Laporte	NIPSCO - Michigan City	UNIT 12 - COAL & NATURAL GAS	105.00	Calculated
029-00002	Dearborn	American Electric Power-Tanners Creek	BOILER 4 - COAL & OIL	96.20	Calculated
073-00008	Jasper	NIPSCO - R.M. Schahfer	UNIT 17 - COAL & NATURAL GAS*	82.40	Calculated
127-00002	Porter	NIPSCO - Bailly Station	UNIT 8 - COAL & NATURAL GAS*	76.10	Calculated
097-00033	Marion	IPALCO - Stout	EWS BOILER 70 - COAL & OIL	76.06	Calculated
173-00002	Warrick	SIGECO-Warrick Power Plant - ALCOA Generating Station	BOILER 4 - COAL & NATURAL GAS	71.06	Calculated
065-00035	Henry	Henry County Memorial Hospital	INCINERATION	70.00	Calculated
097-00012	Marion	Daimler Chrysler	CUPOLA W/VENTURI SCRUBBER	66.00	Calculated
073-00008	Jasper	NIPSCO - R.M. Schahfer	UNIT 18 - COAL & NATURAL GAS*	65.80	Calculated
157-00009	Tippecanoe	Indiana Veteran's Home	INCINERATION	63.00	Calculated
129-00010	Posey	SIGECO - A. B. Brown	BOILER 2 - PULV COAL & NATURAL GAS*	62.50	Calculated
089-00210	Lake	Commonwealth Edison	UNIT 4 - COAL	62.00	Calculated
085-00003	Kosciusko	Dalton Corporation Warsaw Manufacturing	CUPOLA	59.00	Calculated
125-00002	Pike	IPALCO-Petersburg	BOILER NO 1 - COAL & OIL	57.05	Calculated
173-00001	Warrick	SIGECO - F.B.Culley Generating Station	UNIT 2/3 BOILER - NATURAL GAS & COAL*	56.20	Calculated
167-00021	Vigo	PSI Energy - Wabash River	BOILER 6 - COAL & OIL	56.10	Calculated
129-00010	Posey	SIGECO - A. B. Brown	BOILER 1 - PULV COAL & NATURAL GAS*	55.60	Calculated
039-00118	Elkhart	Elkhart General Hospital	INCINERATION	55.00	Calculated
093-00002	Lawrence	Lehigh Portland Cement Co.	KILN #3	55.00	Calculated
093-00002	Lawrence	Lehigh Portland Cement Co.	KILN #2	53.00	Calculated
123-00019	Perry	Waupaca Foundry, Inc. Plant 5	CUPOLA MELT	52.00	Calculated
093-00002	Lawrence	Lehigh Portland Cement Co.	KILN #1	51.00	Calculated
089-00210	Lake	Commonwealth Edison	Boiler - COAL	47.00	Calculated

**CHART B: Estimated Mercury Air Releases from Industrial Sources**

Source Identification	County	Source Name	Process Name	1997 Estimated Mercury Emissions (lbs/year)	Source of Data <sup>1</sup>
173-00002	Warrick	SIGECO-Warrick Power Plant - ALCOA Generating Station	BOILER NO.2 - COAL & NATURAL GAS	46.10	Calculated
097-00123	Marion	Ogden Martin Systems of Indianapolis	MASS BURN INCINER. UNIT 3	45.00	Reported
097-00123	Marion	Ogden Martin Systems of Indianapolis	MASS BURN INCINER. UNIT 1	44.00	Reported
097-00123	Marion	Ogden Martin Systems of Indianapolis	MASS BURN INCINER. UNIT 2	44.00	Reported
173-00002	Warrick	SIGECO-Warrick Power Plant - ALCOA Generating Station	BOILER 3 - COAL & NATURAL GAS	43.10	Calculated
173-00002	Warrick	SIGECO-Warrick Power Plant - ALCOA Generating Station	BOILER 1 - COAL & NATURAL GAS	42.20	Calculated
127-00002	Porter	NIPSCO - Bailly Station	UNIT 7 - COAL & NATURAL GAS*	37.50	Calculated
029-00002	Dearborn	American Electric Power-Tanners Creek	BOILER 3 - COAL & OIL	34.07	Calculated
109-00004	Morgan	IPALCO-Pritchard Station	BOILER NO 3 - COAL & OIL	31.02	Calculated
029-00002	Dearborn	American Electric Power-Tanners Creek	BOILER 2 - COAL & OIL	27.07	Calculated
125-00001	Pike	Hoosier Energy - Ratts Station	UNIT NO.1 - COAL & OIL	27.03	Calculated
089-00117	Lake	NIPSCO - D. H. Mitchell Station	UNIT 6 - NATURAL GAS & COAL	26.40	Calculated
029-00002	Dearborn	American Electric Power-Tanners Creek	BOILER 1 - COAL & OIL	26.06	Calculated
089-00117	Lake	NIPSCO - D. H. Mitchell Station	UNIT 5 - NATURAL GAS & COAL	25.40	Calculated
043-00004	Floyd	PSI Energy - Gallagher	BOILER 2 - PC DB & FUEL OIL	25.20	Calculated
089-00117	Lake	NIPSCO - D. H. Mitchell Station	UNIT 11 - NATURAL GAS & COAL	24.40	Calculated
125-00001	Pike	Hoosier Energy - Ratts Station	UNIT NO.2 - COAL & OIL	24.02	Calculated
089-00316	Lake	Inland Steel Co.	Boiler - Bituminous Coal	24.00	Calculated
089-00316	Lake	Inland Steel Co.	Boiler - Bituminous Coal	24.00	Calculated
043-00004	Floyd	PSI Energy - Gallagher	BOILER 1 - PC DB & FUEL OIL	23.20	Calculated
097-00033	Marion	IPALCO - Stout	EWS BOILER 50 - COAL & OIL	22.02	Calculated
173-00001	Warrick	SIGECO - F.B.Culley Generating Station	BOILER - NATURAL GAS & COAL *	21.10	Calculated
109-00004	Morgan	IPALCO-Pritchard Station	BOILER NO 6 - COAL & OIL	21.01	Calculated
097-00033	Marion	IPALCO - Stout	EWS BOILER 60 - COAL & OIL	20.04	Calculated
167-00021	Vigo	PSI Energy - Wabash River	BOILER 4 - COAL & OIL	19.10	Calculated
089-00316	Lake	Inland Steel Co.	Boiler - Bituminous Coal	19.00	Calculated
089-00117	Lake	NIPSCO - D. H. Mitchell Station	UNIT 4 - NATURAL GAS & COAL	17.00	Calculated

**CHART B: Estimated Mercury Air Releases from Industrial Sources**

Source Identification	County	Source Name	Process Name	1997 Estimated Mercury Emissions (lbs/year)	Source of Data <sup>1</sup>
043-00004	Floyd	PSI Energy - Gallagher	BOILER 3 - PC DB & FUEL OIL	16.20	Calculated
043-00004	Floyd	PSI Energy - Gallagher	BOILER 4 - PC DB & FUEL OIL	15.20	Calculated
167-00021	Vigo	PSI Energy - Wabash River	BOILER 5 - COAL & OIL	15.10	Calculated
167-00021	Vigo	PSI Energy - Wabash River	BOILER 2 - OIL & COAL	15.09	Calculated
089-00121	Lake	U S Steel Co.- Gary Works	NO.13 BF STOVE FUEL NG	15.00	Calculated
167-00021	Vigo	PSI Energy - Wabash River	BOILER 3 - COAL & OIL	13.20	Calculated
165-00001	Vermillion	PSI Energy - Cayuga	BOILER 2 PC DB - PULV COAL & OIL	13.06	Calculated
089-00121	Lake	U S Steel Co.- Gary Works	PM CONTINUOUS HT (NG)	13.00	Calculated
173-00001	Warrick	SIGECO - F.B.Culley Generating Station	BOILER - NATURAL GAS & COAL	8.50	Calculated
019-00008	Clark	ESSROC Cement Corporation	NO.1 KILN	8.05	Calculated/Reported
109-00004	Morgan	IPALCO-Pritchard Station	BOILER NO 4 - COAL & OIL	8.03	Calculated
109-00004	Morgan	IPALCO-Pritchard Station	BOILER NO 5 - COAL & OIL	8.03	Calculated
089-00121	Lake	U S Steel Co.- Gary Works	NO.4 BF STOVE FUEL NG	8.00	Calculated
089-00003	Lake	Amoco Oil Company, Whiting Refinery	#3 POWER STN BOILERS	7.00	Calculated
089-00121	Lake	U S Steel Co.- Gary Works	NO.6 BF STOVE FUEL NG	7.00	Calculated
089-00121	Lake	U S Steel Co.- Gary Works	NO.8 BF STOVE FUEL NG	7.00	Calculated
089-00121	Lake	U S Steel Co.- Gary Works	PM CONT RHT FCES NG	6.00	Calculated
091-00021	Laporte	NIPSCO - Michigan City	BOILER 4 NAT GAS FIRING	2.00	Calculated
091-00021	Laporte	NIPSCO - Michigan City	BOILER 5 NAT GAS FIRING	2.00	Calculated
091-00021	Laporte	NIPSCO - Michigan City	BOILER 6 NAT GAS FIRING	2.00	Calculated
089-00003	Lake	Amoco Oil Company, Whiting Refinery	#1 POWER STN BOILERS	1.00	Calculated
173-00001	Warrick	SIGECO - F.B.Culley Generating Station	BOILER - NATURAL GAS & COAL	0.91	Calculated
089-00121	Lake	U S Steel Co.- Gary Works	#4 BOILER HS 1-2 OIL	0.30	Calculated
097-00033	Marion	IPALCO - Stout	EWS #9 BOILER - #2 OIL	0.10	Calculated
109-00004	Morgan	IPALCO-Pritchard Station	BOILER NO 1 - OIL	0.10	Calculated
109-00004	Morgan	IPALCO-Pritchard Station	BOILER NO 2 - OIL	0.10	Calculated
167-00021	Vigo	PSI Energy - Wabash River	COMBUSTION TURBINE SYNGAS	0.10	Reported
097-00033	Marion	IPALCO - Stout	EWS #10 BOILER - #2 OIL	0.07	Calculated
147-00020	Spencer	Indiana Michigan Power-Rockport	AUX BOILER 2 - OIL	0.05	Calculated



## CHART B: Estimated Mercury Air Releases from Industrial Sources

Source Identification	County	Source Name	Process Name	1997 Estimated Mercury Emissions (lbs/year)	Source of Data <sup>1</sup>
147-00020	Spencer	Indiana Michigan Power-Rockport	AUX BOILER 1 - OIL	0.03	Calculated
097-00033	Marion	IPALCO - Stout	GAS TURBINE #5 - FUEL OIL	0.02	Calculated
091-00021	Laporte	NIPSCO - Michigan City	PUMP	0.01	Calculated
097-00033	Marion	IPALCO - Stout	COMBUSTION GAS TURBINE #1	0.01	Calculated
097-00033	Marion	IPALCO - Stout	COMBUSTION GAS TURBINE #2	0.01	Calculated
097-00033	Marion	IPALCO - Stout	COMBUSTION GAS TURBINE #3	0.01	Calculated
097-00033	Marion	IPALCO - Stout	GAS TURBINE #4 - FUEL OIL	0.01	Calculated
097-00129	Marion	St. Vincent Hospital	ZURN BOILER #1 - #2 OIL	0.01	Calculated
097-00129	Marion	St. Vincent Hospital	ZURN BOILER #2 - #2 OIL	0.01	Calculated
125-00002	Pike	IPALCO-Petersburg	DIESEL GENERATORS	0.01	Calculated
165-00001	Vermillion	PSI Energy - Cayuga	POWER TURBINES (OIL)	0.01	Calculated
129-00010	Posey	SIGECO - A. B. Brown	COMBUSTION TURBINE-F.O.	0.0006	Calculated
085-00003	Kosciusko	Dalton Corporation Warsaw Manufacturing	DIESEL FUEL USAGE	0.0005	Calculated
109-00004	Morgan	IPALCO-Pritchard Station	DIESEL GENERATOR #2 OIL	0.0004	Calculated
073-00008	Jasper	NIPSCO - R.M. Schahfer	EMERGENCY DIESEL PUMP	0.0001	Calculated

<sup>1</sup>Source of Data

Calculated = Calculated by IDEM, OAQ based on actual throughput and emission factors

Reported = Reported by source

\* Note: These units have scrubbers, however the emission factor using an ESP as control was used since that was the only factor available. Therefore, the emissions may be overestimated.